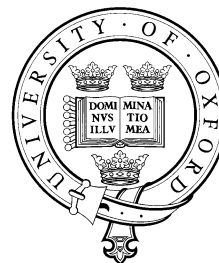


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Measuring Multidimensional Poverty in Latin America: Previous Experience and the Way Forward

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Abstract

This paper states the need to design a multidimensional poverty index for the Latin America region (LA-MPI) that can monitor poverty trends in a cross-country comparable way, yet is also relevant to the particular regional context. We review the region's rich experience with multidimensional poverty measurement, as well as Europe's experiences with multidimensional measurement. We set a number of requirements for the LA-MPI to satisfy and specify the methodological criteria necessary to fulfill such requirements. Drawing from the review, we outline an LA-MPI composed of five dimensions: basic consumptions, education, health, housing and basic services, and work. We list the indicators within those dimensions that are desirable, as well as what indicators are feasible given existing data constraints.

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Resumen

Este trabajo plantea la necesidad de diseñar un índice de pobreza multidimensional para la región de América Latina (IPM-AL) que sirva para monitorear las tendencias de la pobreza de un modo comparable entre países y al mismo tiempo relevante para el contexto regional. El trabajo presenta una revisión de la rica experiencia en la región en materia de medición multidimensional de la pobreza, como así también la experiencia Europea. Establecemos una serie de requisitos que el IPM-AL debería satisfacer y especificamos los criterios metodológicos a seguir para satisfacer tales requisitos. Basándonos en la revisión bibliográfica, esbozamos un IPM-LA compuesto por cinco dimensiones: consumos básicos, educación, salud, vivienda y servicios básicos y empleo, establecemos para cada dimensión los indicadores deseables como así también los indicadores posibles, dadas las restricciones de los datos.

Keywords: Multidimensional poverty measurement, Latin America, unsatisfied basic needs.

JEL classification: D31, I32, O54.

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1. Motivation

“What we measure affects what we do; and if our measurements are flawed, decisions may be distorted” (Sen, Stiglitz, Fitoussi, 2009, p. 12).¹ Poverty is one area where measurement is so key because it guides funds allocation within poverty reduction policies, affects political accountability in the area, and, most importantly, it affects the success in reaching the poor and actually improving their lives.

The release of the Multidimensional Poverty Index (MPI) (Alkire and Santos, 2010; UNDP, 2010), an internationally comparable index to measure acute poverty in the developing world fostered debate on how poverty should be measured (Alkire, 2010; various papers in the *Journal of Economic Inequality*, vol. 9 issues 2 and 3). Such debate reinforced an already increasing interest within the Latin America region in the design of national multidimensional poverty indices. Such interest has been evidenced by the new official multidimensional poverty measures introduced by Mexico in 2009 (CONEVAL, 2009) and Colombia in 2011 (Angulo Salazar et al., 2011) as well as by initiatives in other countries in the region to design their own national measures.

The aim of this paper is to start a process of reflection upon the construction of a multidimensional poverty index for Latin America (LA-MPI) drawing from previous experiences in the region as well as elsewhere. We intend to cover a gap in poverty measurement: an intermediate level between national poverty measures and international poverty ones. National measures are relevant for the particular country but they might not be applicable to monitoring poverty at the regional level. Similarly, international poverty measures allow comparing poverty in, for example, Peru with poverty in Nigeria, India or Bangladesh, but they may fall short of accounting for what is considered to be poor in the region.

The need for a Latin American MPI was expressed in Roche and Santos (2013), who explore ways in which the global MPI could be adjusted, using the same dimensions and indicators, in order to capture not just acute poverty but also a ‘second layer’ of poverty. In fact, Latin America is estimated to be the second least acutely poor (MPI-poor) region in the developing world. In this paper, however, we do a different exercise. We take a side step from the global MPI in order to think about the dimensions and indicators that could be meaningful for the region in particular.

¹ Report of the commission on the Measurement of Economic Performance and Social Progress created by the French President Sarkozy.

One clarification is necessary before proceeding. We understand multidimensional measures as measures that are based on micro-data; that is, a household is identified as poor or not based on the deprivations it experiences. This differs from composite indices aggregating macro-data indicators, such as the Human Development Index (Anand and Sen, 1994) or the Human Poverty Index (Anand and Sen, 1997).

Section 2 reviews the experience in multidimensional poverty measurement in the Latin America region. Section 3 summarizes a comparable experience in Europe. Section 4 sets the desirable requirements for the LA-MPI and states some particular guidelines to accomplish them. This section finalizes proposing a first draft of the dimensions and indicators to include in the LA-MPI. Finally Section 5 concludes with a call for improvements in data collection and the next research questions.

2. Previous experience of multidimensional poverty measurement in the region

2.1 The UBN approach

Latin America has a well-known experience in multidimensional poverty measurement within the Basic Needs Approach. Back in the 1980s, household surveys were uncommon in the region and thus measuring monetary poverty in a systematic and regular way was not possible. In this context, the Basic Needs Approach served as a framework to select a few key indicators available in census data that allowed monitoring poverty in the region. The method was first implemented in Chile in 1975, constructing a map of extreme poverty (Kast and Molina, 1975), but it gained prominence after the seminal study conducted by the Institute of Statistics and Census of Argentina (INDEC) and the Economic Commission for Latin America and the Caribbean (ECLAC/CEPAL in Spanish) (INDEC, 1984). The study stated three principles that would guide the selection of indicators:

- (1) That the indicators represented the degree of failure to satisfy some specific group of basic needs
- (2) That these indicators were significantly associated with [income] poverty
- (3) That these indicators were comparable across regions of the country so that poverty maps could be constructed.

A fourth implicit principle was that the indicator needed to be available in the census data. In practice, the second and fourth principles dominated the process. Within the project, CEPAL conducted an empirical study using data from a survey in Argentina, which had both information on income and indicators contained in the census data.² The recommended indicators to be used were those that had

² It was the Encuesta Permanente de Hogares conducted in October 1980 in two urban areas of Argentina: the Great Buenos Aires area and the city of Goya (taken as representative of urban areas other than Buenos Aires). It may be worth noting that

been shown to be good (strong) predictors of income poverty (both absolute and relative poverty lines were considered). In other words, while the study formally recognized poverty as a multidimensional problem, the underlying poverty concept used was that of insufficient income.

The set of indicators of Unsatisfied Basic Needs (UBN, NBI in Spanish) chosen by INDEC and CEPAL were:

- (1) Households with more than three people per room (overcrowding)
- (2) Households with precarious housing
- (3) Households with no kind of toilet
- (4) Households with children of school age (6–12 years old) not attending school
- (5) Households with four or more people per working member (high dependency ratio) and whose household head's education is at most second grade of primary education. (Indicator of Economic Capacity, taken as a surrogate for income).

Very similar sets of indicators were used to measure UBN poverty by the statistical institutes in most Latin American countries: Bolivia, Chile, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Peru, Uruguay, and Venezuela. Feres and Mancero (2001, p. 67) noted that UBN indicators typically belonged to four broad dimensions:

- (1) Access to minimum housing standards
- (2) Access to basic services that guarantee minimum sanitary conditions
- (3) Access to basic education
- (4) Economic capacity to achieve minimum consumption levels.

The UBN method to measure poverty uses what is called a *counting approach* to identify the poor. Such identification approach entails “counting the number of dimensions in which people suffer deprivation. ... People have scores corresponding to the number of dimensions on which they fall below the threshold” (Atkinson, 2003, p. 51). Two points are worth noting. First, prior to identifying the poor, it must be decided whether all deprivations should count the same or not. When indicators have been chosen to be of relatively equal importance, equal weights seem a reasonable option (Atkinson et al., 2002; Alkire and Foster, 2011). In other settings, however, it may be more appropriate to weight indicators differently. For example, when there are different numbers of indicators per dimension, an

the Encuesta Permanente de Hogares was already being conducted regularly by INDEC but it was restricted to the Greater Buenos Aires area.

equal-nested weights structure (Alkire and Foster, 2011) might be convenient. Nested weights mean that each dimension is equally weighted and weight is in turn equally distributed among indicators within each dimension. Thus the ‘deprivation score’ of each person is the weighted sum (or count) of deprivations she experiences.

In order to decide whether the person is to be considered poor or not, the person’s deprivation score is compared to the *poverty cutoff*, defined as the score required to be identified as poor. In the counting approach the poverty cutoff is a specific number (or proportion) of weighted deprivations. Thus, the second point to highlight is that the poverty cutoff can range from experiencing at least one deprivation – what is called the *union criterion* – to experiencing all deprivations – what is called the *intersection criterion*. A union criterion would be intuitive if sufficiency in every dimension were truly essential for avoiding poverty, whereas an intersection criterion would be intuitive if sufficiency in any single dimension were enough to prevent poverty (Alkire and Foster, 2011, p. 478). There are intermediate options in between by which the individual might be required to experience a certain number or proportion of deprivations from those considered in the measure (for example 1/3 of deprivations). This option has been emphasised by Alkire and Foster (2011).

In Latin America, equal weights were used for each indicator, despite the fact that some of them can be linked to the same dimension – predominantly housing and education. The UBN poor are those who experience at least one deprivation (i.e., a union criterion is used). However, information on UBN has been typically presented with a range of statistics, including the proportion of households and people experiencing *each* unsatisfied basic need and different combinations of them. In terms of the aggregation measure used in the UBN approach, this has been the headcount ratio, with its well-known limitations, namely being insensitive to the depth deprivations (Watts, 1969; Sen, 1976), as well as being insensitive to the breadth of poverty (Alkire and Foster, 2011). Taking advantage of the disaggregated level of information provided by census data, the methodology was used to construct detailed poverty maps, which became a valuable tool for policy (Katzman, 1996; Coady, Grosh and Hoddinott, 2004).

2.2 The Integrated Method and the ‘Improved’ Integrated Method

As household surveys started to be regularly implemented in Latin American countries, the measurement of poverty with the income method also became widely implemented following the methodology outlined by Altimir (1979). Then, a natural interest in crossing the UBN method with the income method emerged, as this was now possible using household surveys (which contained the UBN indicators plus information on income). With this motivation, Beccaria and Minujin (1985) and Katzman (1989) proposed the “Integrated Method” to measure poverty which identified four sets of people: (1)

the income and UBN poor, (2) the UBN poor but income non-poor, (3) the income poor but UBN non-poor and (4) the non-poor by any method, as expressed in Table 1.

Table 1: The Integrated Method to Measure Poverty

	UBN Poor	UBN Non-Poor
Income Poor	Chronically Poor	Recently Poor
Income Non-Poor	With structural deprivations	Socially Integrated

The first group was named the ‘**chronically poor**’ because it was assumed that an insufficient income coupled with critical needs (at least one UBN) would reproduce poverty over time. Moreover, it was empirically observed that the majority of these households exhibited more than one UBN. The second group was labeled as households ‘**with inertial deprivations**’ or households in ‘**structural poverty**’, understanding that the UBN indicators reflected deprivations that had been experienced for a while, contributing to an adaptation to an impoverished style of living. The UBN non-poor but income poor were labeled as a group in ‘**recent poverty**’. Given that these households did not exhibit deprivations in the indicators of basic needs, they were assumed to have been non-poor in the past. However, their below-the-poverty-line income suggested that they had experienced a process of impoverishment recent enough so as not to be reflected in characteristics of the shelter, access to basic services and education. An analysis of the profile of these households against the other groups supported this hypothesis.³

Empirical evidence from the integrated method showed that the income method and the UBN method were complementary, identifying different slices of the population and that clearly the coincidence between the two groups was far from perfect (Boltvinik, 1991).⁴

However, Boltvinik (1992) noted that the complementarity between the two methods was just a coincidence, essentially a consequence of the sequencing in which poverty measurement had been implemented. He highlighted that combining the two methods had some conceptual redundancies, such as including the indicator of “economic capacity” in the UBN method (unnecessary given that the income poor were identified). He then proposed an “Improved Integrated Method to Measure Poverty”, which involved changes in each method separately, as well as in their combination. His proposal can be summarized in the following points.

³ See Katzman (1989), p.130 for the case of Uruguay.

⁴ Evidence from Montevideo (Uruguay) and Great Buenos Aires (Argentina) indicated that only 7% of households were both income poor and UBN poor. Evidence from Peru showed a higher coincidence – nearly 40% of the population were identified as chronically poor. (See Boltvinik 1991 for further comments on this evidence.)

- (1) The UBN indicators should be those associated with public spending, the household's cumulative investment and disposable time (although he also proposed an alternative in which time could be incorporated in the income indicator). In particular, he suggested the following UBN indicators: (1) sanitation conditions (water and sewage), (2) access to electricity, (3) other services (such as phone and garbage collection), (4) quality of the materials of the dwelling and overcrowding, (5) educational level of adults and children's school attendance (6) furniture and appliances of the household, (7) access to health care and social security (if there is no access, then the required amount of income to satisfy this need should be considered in the income method). In turn, the income method should considered items that would depend fundamentally of private consumption, namely: (1) food, (2) petrol, (3) personal and household's hygiene, (4) clothing, footwear and personal care, (5) transport, (6) expenditure in basic communications, (7) recreation and culture, (8) expenditure in basic services (electricity for example), (8) expenditure in health care and education, (9) other expenditure.
- (2) He proposed using a more comprehensive basket of goods and services in constructing the income poverty line. He argued against using the *cost of basic needs methods*, which entails computing the food basket and then expanding it by the inverse of the Engel coefficient to estimate (indirectly) the cost of the non-food items. He considered that a complete normative basket of the necessary food *and* non-food items should be defined.
- (3) He advocated incorporating the depth of deprivation in each dimension (rather than dichotomizing achievements in each of the UBN indicators into 'deprived' and 'non-deprived'). Specifically, he proposed computing deprivation gaps as with income poverty measures (distance of the achievement in a certain indicator to the deprivation cutoff as a proportion of the deprivation cutoff).⁵ He allowed negative values for the deprivation gaps (i.e., those for which people have achievements above the deprivation cutoff) in order to permit substitutability across deprived and non-deprived items when aggregating them. He proposed to normalize the gaps so that they would vary between -1 and 1. In sum, note that this proposal entails *cardinalising* ordinal variables, for which then as now, there is yet no robust method.⁶

⁵ Traditionally, given an achievement x_{ij} of person i in indicator j , with $x_{ij} \geq 0$ and the deprivation cutoff $z_j > 0$, the deprivation gap is given by: $g_{ij} = (z_j - x_{ij})/z_j$ if $x_{ij} < z_j$ and $g_{ij} = 0$ otherwise. However, Boltvinik explicitly allowed for negative gaps. Boltvinik proposed normalising gaps to range between -1 and 1, dividing them by (the absolute value of) a normative maximum negative gap, and replacing them by -1 whenever the absolute value of the negative gap was higher than the maximum normative gap.

⁶ Robustness here refers to the poverty measure being invariant to increasing monotonic transformations of the scales of the ordinal variables. For a good introductory discussion on the limited kind of operations one can meaningfully do with ordinal variables, see Stevens (1946).

- (4) He discussed alternative methods to weight the UBN indicators: (a) equal weights, (b) the complement of the deprivation rates in each indicator, as suggested by Desai and Shah (1988) and (c) a combination of monetary and time valuations of each need.
- (5) He proposed including the dimension of time in order to account for time poverty.⁷

In this method, the UBN score of each person is added to her income poverty score to obtain an aggregate poverty score, which is then compared to the poverty cutoff to determine who is poor. Boltvinik suggested three alternative poverty cutoffs: those with an integrated poverty score higher than 0.1, those with a strictly positive integrated score, or those with an integrated poverty score higher than -0.1. Finally, he proposed using Sen's (1976) poverty index to obtain a distribution-sensitive measure, namely, a weighted sum of each person's score, where the weights are the rank position among the poor.

Boltvinik's method was applied in Mexico (see Boltvinik 1995, 1996, for example), but it was not implemented on a broader scale. This is likely because (a) it requires a number of complex estimations, such as those related to time use and monetary valuations of UBN indicators, (b) it attaches a cardinal meaning to categories of response in ordinal variables; thus the *depth* of the UBN index depends on the particular cardinalization used, (c) some steps, such as the cardinalization of ordinal data and the consideration of negative gaps, prevent the resulting measure from satisfying some properties considered relevant by several authors, (d) in trying to accomplish too much, the method loses intuition, especially the intuition that characterizes counting the number of deprivations to identify the poor.

2.3 Recent National Multidimensional Measures in the Region

There are two countries in the region that have developed official multidimensional poverty measures. One of them is Mexico, which launched its measure in December 2009; the other is Colombia, which launched its measure in 2011. Each country has undergone different processes to construct their measures in such a way that they enjoy acceptance and consensus.

Mexico's measure was motivated by the approval of the General Law of Social Development (LGDS in Spanish) in January 2004. The law was the outcome of a long process of debate and reflection in which voices from political, social and intellectual spheres participated. The LGDS states a National Policy of

⁷ He proposed two alternatives. One entailed incorporating time in the UBN method, weighting deprivations related to leisure and education by the proportion of time required to fulfil them; the other deprivations would be weighted using a monetary valuation (something like a price) (see Boltvinik, 1992, pp. 360–361). The other (simpler) procedure entailed computing an index of time given by the number of hours worked by adults, children and the number of hours that would be required to close the educational gap of the adults, as a proportion of the number of hours that constitute a workday of normal length for all household members. When the time index is higher than 1, it reflects excess work compared to the normative cutoff. The observed income should be divided by this index, subtracted from the income poverty line, and normalised by it in order to obtain the income gap.

Social Development, which must guarantee social rights (individual and collective) and the economic development upon the principles of “freedom, distributional justice, solidarity, integrity and social participation and the respect of diversity, transparency and free determination of people” (CONEVAL, 2010, p.1). The same law defines the social rights of “no discrimination, education, health, access to food, housing and enjoyment of a healthy environment, to work and to social security” (Article 6). The independent Council for the Evaluation of Social Policy (CONEVAL), created in 2006 as a consequence of this law, designed the multidimensional measure such that it would reflect the policy and the social rights defined in the LGDS.

Between 2006 and 2009, CONEVAL conducted a series of consultations with experts regarding alternative poverty measures to be implemented. The methodology developed by Alkire and Foster (2007, 2011; AF methodology hereafter) greatly influenced the design of Mexico’s official measure. In terms of the indicators to be included in the measure, CONEVAL grouped the dimensions listed in the law into two categories that would compose the measure: economic wellbeing and social rights, each of which is equally weighted. Fifty percent is given to economic wellbeing (income) and 50% to social rights, and each social right is also equally weighted ($50/6=8.33\%$).⁸ A person is multidimensionally poor when his/her income is below the poverty line *and* when she is deprived in at least one of the six social rights: educational gap, access to healthcare, access to social security, housing quality and spaces, basic services in homes and access to food.⁹

In the case of Colombia, poverty reduction was set as a national priority in the National Development Plan. The government commissioned the Department of National Planning (DNP) to design the measure to monitor such a goal. The DNP outlined the following principles to guide the selection of dimensions and indicators: (1) the indicator had to be of frequent use (nationally or internationally) in Colombia and backed up by the Constitution or some national law, (2) the indicator had to be among

⁸ A third category, social cohesion, is evaluated independently at the territorial level using four different measures: the Gini coefficient, a polarization measure at the local level, income of the extreme multidimensionally poor as a ratio to the income of the non-multidimensionally poor and non-vulnerable, and an index of perception of social networks (CONEVAL, 2010).

⁹ In the educational domain, a person aged 13–15 years is considered deprived if he/she is not attending a formal educational center. For the population above 16 years of age, deprivation is reflected by not having completed mandatory basic education (the level that was mandatory at the time the person was the relevant age for attending school). A person is deprived in access to health if he/she is not enrolled in or not entitled to receive medical services from public or private services. A person is considered deprived in the dimension of social security if he/she does not receive medical services through a public, voluntary or family network. A person is considered deprived in access to basic services if he/she is not in a location where he/she has access to fresh or piped water, public drainage services or public electricity. A person is considered deprived in housing if the construction of walls, floors and roofs is from residue material or soil, and if the ratio of people per room is greater than 2.5. A person is considered deprived in access to food if she lives in a household with a level of moderate or severe food insecurity. In the economic wellbeing category two lines are used, one that covers the cost of the basic food basket, the other covers the cost of food and non-food basic items. Deprivation in economic wellbeing (using the two lines), combined with different numbers of deprivations in social rights, allows the identification of different groups among the poor. (CONEVAL, 2010; OPHI, 2013).

those emerging from a review of the literature comprising prominent sources such as the Millennium Development Goals Indicators, (3) it had to be such that it could be affected by public policy, (4) the indicator had to be available in the Quality of Life Survey (Encuesta de Calidad de Vida) and (5) the available information had to allow for estimates with a coefficient of variation lower than 15% (Angulo Salazar et al., 2011).

Following the above principles, the DNP designed a measure composed of 15 indicators belonging to five dimensions: educational conditions of the household, childhood and youth, work, health, and housing and public services.¹⁰ The measure follows the AF methodology. It has a nested weights structure, where each dimension is weighted at 20% and each indicator within each dimension is equally weighted (for example, each of the two educational conditions indicators are weighted 10% each, whereas each of the four children and youth indicators are weighted at 5%. Someone is multidimensionally poor if he/she is deprived in 33% of the weighted indicators. (Angulo Salazar, Cuervo, Pinzon, 2011). Since 2012, this multidimensional measure has been used to define the regions for the allocation of the conditional cash transfer program Familias en Accion Plus. The measure is also used to monitor regional policies and to define goals on specific interventions (OPHI, 2013).

El Salvador started in 2011 the process of designing a national multidimensional poverty measure in order to monitor poverty trends and guide social policy. The technical and advisory board created for that purposed revised the experience in the country and in the world and have conducted focus groups with people living in poverty. They have identified eight dimensions: employment, housing, education, security, recreation, health, nutrition and income. The measure will be completed by early 2014 (OPHI, 2013). Since 2012, the state of Minas Gerais in Brazil is also implementing a multidimensional poverty measure in 132 of its municipalities (using the AF methodology) to target its poverty reduction program called Travessia. Information to determine who is poor is collected door-to-door. (OPHI, 2013). Finally, Chile is also undergoing the process of designing a multidimensional poverty measure, as well as several other Latin American countries.¹¹

¹⁰ Within the educational dimension of the household, the indicators are: no illiterate member, average schooling of members of 15 years and older is nine years or more. Within the childhood and youth dimension, the indicators are: all children between 6 and 16 years must be attending school, all children between 7 and 17 years must be at their grade-for-age at school, all children under 5 years old must have access to health, nutrition and initial education and no child between 12 and 17 years must be working. Within the work dimension, the indicators are: household members who have been unemployed for more than 12 months and no informally employed member. Within the health dimension, the indicators are: all household members of 5 years or older must have health insurance and all members can receive health care if they need to. Finally, within the housing and public services dimension the indicators are: clean water, improved sanitation, non-dirt floor, satisfactory exterior wall materials and no overcrowding.

¹¹ Such countries are in consultation with the Oxford Poverty and Human Development Initiative (OPHI) for the design of their measures but at the moment.

Outside Latin America, other countries have also developed multidimensional poverty measures with varying purposes using the AF methodology, namely, the region of Wu Ling Mountain in China, Malaysia and Bhutan (OPHI, 2013).

2.5 Recent Studies of Multidimensional Poverty Measurement in the Region

The previous sections refer to experiences in multidimensional poverty measurement in the region, which have had some policy impact. Yet there have also been some academic studies that have presented techniques and evidence in poverty measurement from a multidimensional perspective.

Arim and Vigorito (2007) focus on the case of Uruguay using the Bourguignon and Chakravarty (2003) family of indices. They use three dimensions: (1) access to knowledge, as measured by years of education of the household head (with the deprivation cutoff set at six years), (2) housing conditions, as measured by overcrowding (with more than 2 people per room being considered deprived), and (3) access to resources, measured with two indicators: an index of durable goods and household per capita income. Amarante et al. (2008) also study the case of Uruguay comparing three alternative methodologies: Bourguignon and Chakravarty (2003) indices, the fuzzy sets approach, and the stochastic dominance approach developed by Duclos, Sahn and Younger (2006). They consider four dimensions: (1) health, using the stunting indicator (height-for-age) for children under five years of age (all household members are considered deprived if a child is stunted); (2) participation, using an index of participation in social life (constructed following a methodology of principal components, as used by Filmer and Pritchett, 2001);¹² (3) education, using the educational attainment of adults in the household (nine years or more); (4) housing, using the overcrowding indicator (more than three people sleeping in the same room); and (5) income, measured by per capita household income. These studies find that multidimensional poverty has decreased and that its evolution over time is smoother than that of income poverty, as the former includes less volatile indicators.

Conconi and Ham (2007) also employ Bourguignon and Chakravarty indices (but using a relative approach to measurement) in a study on Argentina for the period around the last financial crisis (1998–2002). They use four dimensions for each of which an index is constructed using principal components: (1) work, as measured by being employed or not, being in wage-labor or not and being formally employed; (2) housing, measured by four indicators: whether the building is precarious, whether it has access to piped water, electricity and flush toilet to pipe; (3) education, measured by an index of literacy

¹² The index considers if adult members of the household take part in a wide range of community, political and social activities including participation at parental associations at school, trade unions, political parties, civil associations were considered. A household is considered non-deprived if at least one of its members participates in one or more activities.

and maximum achieved educational level; (4) income: measured by per capita household income. The authors find that the increased deprivation in employment and income is behind the rising trend in poverty in the study period.

A number of other studies propose alternative measures of multidimensional poverty to study Latin American countries. Paes de Barros et al. (2006) suggest using a weighted average of dichotomous indicators of deprivations as a multidimensional poverty measure for Brazil. Specifically, 42 indicators grouped into 21 sub-dimensions corresponding to six dimensions are used. The six dimensions are as follows: (1) vulnerability, which considers indicators of child mortality, presence of infants or adolescents in household, presence of elderly members, dependency ratio, absence of mother in the household; (2) access to knowledge, which considers literacy, schooling and professional qualification; (3) access to work, which considers unemployment, informal employment, paid work (above minimum wage); (4) access to resources, which considers indicators of per capita household income below the extreme poverty line and below the total poverty line and reliance on income transfers; (5) performance of youth, which considers child labor, failure to attend school, educational gap, illiteracy (for children of 10 years or older) and child mortality (again); (6) housing conditions, which consider tenure of the house, overcrowding, precarious materials, inadequate access to water, unimproved sanitation, garbage collection, access to electricity, ownership of some assets (such as refrigerator, TV, radio, telephone).

Lopez-Calva and Rodriguez-Chamussy (2005) adopted a multidimensional approach to studying poverty in Mexico and evaluate the discrepancy with monetary poverty estimates. They consider ten indicators: household head education, child (6–15 years) school attendance, child labor (12–15 years), housing materials (roof, walls, floor), access to piped water in dwelling, access to some form of flush-to-pipe sanitation facility, overcrowding, access to refrigerator and social security for at least one household member. The authors find a relatively low discrepancy between the two methods, although they believe this is because the indicators they used are highly associated with access to resources and advocate for data collection on a wider range of indicators. In fact, this conclusion is also favored by a later work of Lopez-Calva and Ortiz-Juarez (2009), which uses data that allows incorporating dimensions less directly related to income, such as experience of violence, and self-esteem of the household head. They estimate the magnitude of the “exclusion error” in targeting programs when a monetary measure is adopted instead of a multidimensional one. They find a large variability in the exclusion error depending on the selected criterion used to identify the multidimensionally poor (union *vs.* intersection), and they find that as they incorporate a broader set of indicators less directly related to resources and income, the exclusion error increases when income poverty is used to target the poor.

Santos et al. (2010) propose three specific refinements to the UBN methodology: (1) incorporating income as a proxy indicator for other non-included dimensions, (2) incorporating the breadth of poverty by using one of the measures of the AF methodology, and (3) allowing for a flexible weighting system. They implement such refinements to estimate multidimensional poverty in Argentina, Brazil, Chile, El Salvador, Mexico and Uruguay over the period 1992–2006. Findings indicate that overall there has been an enormous improvement during the fourteen years considered, with decreasing trends in multidimensional poverty due, in general, to a reduction in both the proportion of individuals who are poor and the number of deprivations that they have on average (i.e., poverty intensity). However, multidimensional poverty estimates in rural areas are still considerably higher and the probability of experiencing simultaneous deprivations is much higher in rural than in urban areas. Battiston et al. (2013) perform estimates for the same countries and period but using a wider range of measures, which includes other members of the AF family of measures and the Bourguignon and Chakravarty (2003) indices, as well as different weighting structures. Evidence is consistent with conclusions mentioned above. Finally, Roche and Santos (2013) explore ways in which the global MPI proposed by Alkire and Santos (2010) could be adapted to better reflect poverty in Latin America.

Another interesting measurement exercise was that conducted in the Mercosur Human Development Report 2009–2010. The report presents a multidimensional poverty index for young people (15–29 years old) for the four Mercosur's countries (Argentina, Brazil, Paraguay, Uruguay), implementing the AF methodology (PNUD, 2009). The index is composed of four dimensions. Three of the dimensions are composed of household-level indicators: education (completed years of schooling), access to resources (overcrowding and per capita household income) and social inclusion (attending school or being employed). The remaining dimension is health and environmental risk; it comprises information on four indicators available at the state level in Brazil, at the provincial level in Argentina and at the country level in Paraguay and Uruguay. The four indicators are the mortality rate (per 100,000 people) by age group, the percentage of deaths due to external causes in each age group, access to the sewerage and rate of reported cases of HIV in each group-age (per 100,000 people). Estimations are performed for the years 1992, 1999, 2004 and 2007. Findings indicate that the situation of Paraguay is the most problematic: no progress was made in the considered period, whereas in Brazil there was a significant reduction in poverty (regardless of the number of weighted deprivations required to be identified as poor). It was also found that in the four countries over half of the young people face at least one deprivation, but less than 2% face four deprivations. Also, the age group 15–19 years is the one with highest proportions of poor people.

It is also worth noting that since 2004, the Programa Observatorio de la Deuda Social Argentina (Pontificia Universidad Catolica Argentina) implements a survey that collects information on housing conditions, health and subsistence alongside less traditional dimensions such as time use, social connections, culture, meaning in life and spirituality (BDSA, various years). In some of its reports it has produced composite indices of deprivation constructed using principal components analysis.

Gallo and Roche (2011) propose and explore alternative multidimensional poverty measures for Venezuela. They consider the following indicators: housing conditions, overcrowding, source of drinking water, sanitation, garbage collection, access to gas or electricity, a set of assets or durables (washing machine, refrigerator, TV, AC, water heater, drying machine, car), occupation, economic dependency, access to the basic food basket, child school attendance and (adults') years of education. The authors find deprivation in the minimum level of income (cost of basic food basket) to have a low correlation with the other indicators. Exploratory factor analysis suggests that within the housing dimension, there are two sub-dimensions, one connected to basic services and another to quality of the housing. Exploratory factor analysis also suggests that occupation, economic dependency, assets and minimum income capture another dimension, which can be referred as 'resources'. A third dimension would comprise the educational indicators. They estimate alternative measures by grouping the indicators different ways and by using alternative weighting structures. They find the measures to be quite sensitive to the inclusion of the variables related to work and income, as well as to alternative weighting structures. Yet, one robust result (independent of the weighting structure used) is that there has been a decreasing trend of multidimensional poverty between 2003 and 2008, which has been led by a reduction in poverty incidence rather than by a reduction in poverty intensity. Improvements in asset ownership, employment and education have been key contributors among the different indicators considered.

As a final note, it must be mentioned that most Latin American countries currently use proxy-means testing to identify eligible households for conditional cash transfers programs (CCTs). Proxy-means tests (which may use different statistical procedures) consist of a formal algorithm which generates a score for each household based on household information and individual characteristics. The score is compared against a specified cutoff to determine the eligibility of the household for the program. Some argue that the targeting methods currently used by CCT programs take into account the multidimensionality of poverty, since a variety of household characteristics are included in the proxy-means test. However, Azevedo and Robles (2013) argue that is actually not the case, as the considered variables are selected such that they proxy as well as possible monetary poverty. Moreover, the authors point out that while CCTs have been generally successful in identifying the income poor, they have not fared equally well in identifying households that under-invest in human capital. The authors propose a multidimensional

targeting approach based on the AF methodology to identify beneficiaries in such a way that it explicitly addresses the multiple objectives of the particular program. Thus, while we acknowledge the work so far in terms of targeting methods for CCTS, we understand this is not as relevant in terms of experience in multidimensional poverty measurement.

3. Experiences of Multidimensional Poverty Measurement in Europe

In addition to Latin America, Europe also has a tradition of multidimensional poverty measurement. Although the dominant approach there has been of relative poverty rather than absolute poverty, there are several important commonalities in the approaches between the two regions, namely, (a) an interest in non-monetary indicators (implicitly) connected to a Basic Needs approach, (b) the use of a counting approach to identify the poor and (c) the interest in ‘crossing’ the income poor with the poor identified with non-monetary indicators.

Two seminal studies set the research agenda in the region. The first was the work of Townsend (1979) on poverty in the United Kingdom. Townsend defined a list of 60 indicators covering 12 dimensions: diet, clothing, fuel and light, home amenities, housing conditions and facilities, the immediate environment of the home, conditions at work, family support, recreation, education, health and social relations. He conducted a survey in 1968–69 of about 2000 households, collecting information on this set of indicators and used the information to construct a measure of relative deprivation. Each indicator was equally weighted, although the number of indicators within each dimension varied greatly. For illustrative purposes, he then focused on a shorter list of 12 items covering major aspects of dietary, household, familial, recreational and social deprivation and used a minimum score of 5 (out of 12) as the cutoff to identify someone as poor (p. 252).¹³ Townsend used this procedure to explore the correlation between deprivation scores and household income (adjusted for household size) in order to derive an income threshold below which people are “disproportionately deprived” (p. 255). In other words, he used a *direct approach* to “validate” the poverty line to be used in the *income (indirect) approach* to poverty measurement.

The other benchmark study, which was inspired by Townsend’s work, was that by Mack and Lansley (1985), *Poor Britain*. The study introduced two significant novelties. In the first place, the list of items considered as necessities was constructed using a survey (1983 Breadline Britain), for the first time ever, about the public’s perceptions of minimum needs. The survey found a substantial degree of social

¹³ Very interestingly, Townsend highlighted potential problems in using the union criterion to identify the poor: “No single item by itself, or pair of items by themselves, can be regarded of symptomatic of general deprivation. People are idiosyncratic and will indulge in certain luxuries and apply certain prohibitions for religious, moral, educational or other reasons, whether they are rich or poor” (p. 252).

consensus about what constitutes an unacceptable living standard. The survey was complemented with personal interviews, which drew from experiences of the poor themselves. This is why the method was referred to as the *consensual or perceived deprivation approach to measuring poverty*. Of the original 35 considered items, they retained the 26 items that were considered to be a necessity by strictly more than 50% of the population (majority rule). Second, the survey discriminated between people who did not have an item because they could not afford it from those for whom it was a voluntary choice. The authors identified as poor those who could not afford three or more items from a list of 22, each equally weighted (p. 178). This poverty cutoff was selected after crossing the *enforced* lack of necessities with income levels and spending patterns. The authors continue working on these lines through the Poverty and Social Exclusion Project (funded by the Economic and Social Research Council), with surveys in 1990 (Gordon and Patanzis, 1997), 1999 and 2012. Their survey format was replicated in other surveys in Europe, such as in Wales, and the enforced lack (*vs.* voluntary lack) question has been implemented in two highly used datasets: the European Community Household Panel Survey (EPCH) and the EU-SILC survey.

Other work inspired by Mack and Lansley (1980) includes that of Gordon et al. (2000), who compared the 1983, 1990 and 1999 Breadline Britain surveys in terms of the items considered as necessities and assess the evolution in poverty levels. They used an updated list of 35 items to evaluate poverty among adults and constructed a measure of child poverty using a list of 27 socially perceived necessities for children. They used a poverty threshold of one or more and another more restrictive threshold of two or more. In both cases the poverty cutoff was set using discriminant function analysis.

Also building upon the work of Mack and Lansley (1985), Callan, Nolan and Whelan (1993) proposed to identify the poor combining both resource *and* deprivation measures following Ringen (1987) in this respect. Ringen (1987) stated that “we need to establish not only that people live as if they were poor but that they do so because they do not have the means to avoid it” (p.162, cited in Callan, Nolan, Whelan 1993). They used data from a household survey conducted in Ireland by the Economic and Social Research Institute (ESRI) in 1987, which followed Mack and Lansley’s (1985) format. The authors worked with a list of 24 items and performed factor analysis in order to evaluate possible clustering among the indicators. Based on this, they grouped the items into three dimensions: (1) basic lifestyle (consisting of eight items such as food and clothes), (2) housing and durables (consisting of seven items related to housing quality and facilities) and (3) other aspects of lifestyle (consisting of nine items such as social participation and leisure activities, having a car or telephone). These were then evaluated in terms of the proportion of people who regarded each item as a necessity. Based on this, they restricted their

material deprivation index to the eight items constituting the basic lifestyle dimension.¹⁴ They identified as poor people who both lacked at least one of the eight basic items *and* fell below the relative income poverty line, set at 60 per cent of the average equivalent disposable income in the sample. This work gave rise to a series of subsequent surveys and studies by the ESRI to monitor poverty in Ireland using variations on this combined method of resources and material deprivation, also called a “consistent measure of poverty”, which include Callan et al. (1999), Whelan et al. (2001), Layte et al. (2000), Whelan, Nolan, Maitre (2006), among others.

It is worth noting that the ‘consistent poverty’ definition, by which a person is poor if he/she is deprived both in standard of living, measured by different deprivation indicators, and resources, measured by an income poverty threshold, is conceptually coincident with the category of income *and* UBN poor people identified with the ‘integrated method to measure poverty’ in Latin America.

Several other studies of relative poverty in Europe follow Mack and Lansley’s consensual approach and use a measure of relative deprivation using a counting approach. These include Muffels et al. (1992) for The Netherlands; Halleröd (1995) for Sweden; Halleröd et al. (2006) for Britain, Finland and Sweden; Layte et al. (2001) and Eurostat (2002) for European countries in general; Erikson (1993) for Sweden; and Vranken (2002) for Belgium. All of these studies find a surprisingly low degree of overlap between (relative) income deprivation and (relative) material deprivation. There is also recent work on the search for a relative deprivation index for Europe by Guio (2005, 2009), Guio and Maquet (2006), and Decanq et al. (2013). Interestingly, in 2011, the European Commission implemented an ‘EU-2020’ multidimensional poverty measure using union identification across three indicators: relative income poverty, material deprivation and household joblessness. The measure identified those ‘at risk of poverty and social exclusion’ in order to set and monitor a poverty reduction target for 2020. Contrary to what one might expect a priori, the degree of overlap in people deprived in these dimensions was relatively low. Whelan, Nolan and Maitre (2012) explored the use of the AF method for the case of the European Union using EU-SILC data and advocate the replacement of the current approach by the AF approach, as it is more structured, less ad-hoc and more transparent.

¹⁴ The eight items are: going into arrears/debts to meet ordinary living expenses such as food and rent, not having a substantial meal all day, having to go without heating due to lack of money, enforced lack of new clothes, lack of two pairs of shoes, not being able to afford a roast or equivalent once a week, not being able to afford a meal with meat or fish every second day, not being able to afford a warm coat.

4. The Way Forward

The previous review can be synthesized in the following way. Latin America has a tradition in multidimensional poverty measurement. On the one hand, many countries in the region have a UBN measure, designed back in the 1980s and still currently reported periodically, which is sometimes ‘crossed’ with income poverty in a contingency table. The UBN measures are very similar across the countries and are composed of a reduced number of indicators (typically five) relating to education, housing and basic services, and a proxy of economic capacity. Some of the weaknesses of the UBN measures at the moment are as follows. At the time UBN measures were designed, the indicators’ association with income and data availability guided their selection, rather than a normative assessment or a participatory process. The indicators’ cutoffs now seem to be outdated in some cases (such as the educational level of the household head). The (equal) weighting of the indicators is questioned, as some dimensions thus have a disproportionate share. The union criterion to identify the poor might also be revised as it can lead to leakages. Finally, the aggregation measure – the headcount ratio – has well-known axiomatic limitations.

On the other hand, there are also recently developed national measures in a few countries. These countries have undergone a thorough process for the selection of the dimensions, indicators and deprivation cutoffs, building consensus on their measures and making them relevant for their current context. These measures use a technically solid measurement methodology (the AF one), which is sensitive to the breadth of poverty. Yet these measures are obviously quite context-specific and thus may not be suited to measure progress across the region.

There are also some academic studies that have evaluated multidimensional poverty in different countries using solid methods such as the AF methodology or Bourguignon and Chakravarty (2003) or dominance approaches, but all of them were mostly for exploratory and illustrative purposes rather than suggestive of measures that can actually guide policy.

Finally, there is the interesting European experience. We can learn from their efforts in collecting data tailored to the measurement’s purpose, including questions on perceived necessities and enforced lack *vs.* lack by choice.

In this context, there seems to be scope and need for designing a multidimensional poverty index for Latin America (LA-MPI hereafter) that serves the purpose of monitoring poverty reduction in region. We dare to outline some features that it may be convenient for an LA-MPI to have. It seems desirable that the measure is: (1) internationally comparable across the Latin American countries, (2) relevant to the Latin American context, (3) validated by the previous experience in the region and by the

international literature (within and beyond the region) as well as – ideally – by public opinion, (4) related to regional policy goals (such as the MDGs or the *Objetivos Andinos de Desarrollo Social*), (5) replicable, (6) easily understandable, (7) methodologically robust.¹⁵ In the following sections we outline a set of guidelines that we think would enable the satisfaction of the above desiderata.

4.1 Criteria for Selecting Dimensions and Indicators

Selecting the dimensions and indicators for a multidimensional poverty measure is a fundamental step which requires the use of an explicit criterion. Robeyns (2006) recommends that researchers, analysts and government officials should be very explicit about the process they used to select dimensions, arguing why such particular selection of dimensions is justifiable, in order to foster public debate and feedback. She also indicates that they should disclose the dimensions that are important but were omitted due to feasibility considerations such as missing data.

Alkire (2008) noted that most researchers have drawn implicitly on one or more of five selection methods when selecting dimensions for their studies; the methods also apply to the selection of indicators (within each dimension). These are:

1. ***Existing data or convention:*** To select dimensions mostly because of convenience or a convention, or because these are the only data available with the requisite characteristics. If one is not gathering data directly, this is a necessary but insufficient reason.
2. ***Theory:*** To select dimensions based on implicit or explicit assumptions about what people do value or should value. This can be useful, if combined with 3 or 4.
3. ***Public ‘consensus’:*** To select dimensions using a list that has achieved a degree of legitimacy due to public consensus. Examples include human rights, the MDGs, and the Sphere project (a set of minimum standards in disaster response) or national plans. This is useful, particularly in combination with 4 or if various actors can publicly scrutinize them.
4. ***Ongoing deliberative participatory processes:*** To select dimensions on the basis of ongoing purposive participatory exercises which regularly elicit the values and perspectives of stakeholders. This is useful if participation is relatively wide and undistorted.
5. ***Empirical evidence regarding people’s values:*** To select dimensions on the basis of empirical data on consumer preferences and behaviors, or psychological studies of which values are most relevant. This can be useful in combination with 3 or 4 but not alone, unless the study

¹⁵ The three last points are usually argued by James Foster and Sabina Alkire for national poverty measures to satisfy.

elicits people's definitions of ill-being and wellbeing and thus draws directly upon practical-reason and aspirations.¹⁶

Clearly, these methods overlap and the choice of methods vary by context. The dimensions and indicators of the UBN approach in Latin America were selected with existing data and theory, under the assumption that poverty was about lack of income. In contrast, the measures of relative deprivation in Europe built within the consensual approach were constructed based on a combination of theory and empirical evidence regarding people's values, and, given the characteristics of the study (broader than a survey), we could assert that it drew on practical reason and aspirations. In turn, the national measures recently developed in Mexico and Chile have used a combination of public consensus, theory and existing data or convention, whereas in El Salvador they are complementing such criteria with deliberative participatory processes. The academic studies done in the region have relied on a combination of public consensus, theory and existing data.

A priori the set of possible dimensions seems inexhaustible. However, Alkire (2002) reviews fifteen 'lists' of relevant dimensions outlined by different authors (including lists of basic human values, central human capabilities, axiological categories, dimensions of wellbeing, domains of life satisfaction, human needs, among others) and concludes that there is actually a high degree of agreement, "although the number and language vary somewhat" (Alkire, 2002, p. 193). An example of such lists is that of the seven basic human values proposed by Finnis (1980): (1) Life (survival, health and reproduction), (2) Knowledge (including understanding, education, aesthetic experience), (3) Meaningful Work and Play, (4) Friendship and other valued kinds of human relationships, (4) Self-Integration (inner peace), (5) Authentic Self-Direction (participation, self-determination, practical reason), (6) Transcendence ("peace with God, or the gods, or some nontheistic but more than human source of meaning and value") (cited in Alkire, 2002, p. 186 and Alkire 2008, p. 105).

However, while the potential dimensions to consider are somehow limited, the possible indicators to measure such dimensions in a multidimensional poverty measure are usually many, and their selection requires a careful process which needs to make explicit the methods listed above but also needs to consider the purpose of the measure (monitor, target), the unit of analysis (the household or the

¹⁶ Practical reason is the general human capacity for resolving, through reflection, the question of what one is to do (Stanford Encyclopedia of Philosophy).

individual), the type of preferred indicator (of access to resources or *functionings* for example),¹⁷ the literature around that indicator, and the interrelation of that indicator with others.

In view of this discussion, we now consider the practical implications that the *desiderata* stated in the previous section for the LA-MPI has. First, for the LA-MPI to be internationally comparable across the Latin American countries, the selected indicators need to be present in the data sources of all the LA countries and should have homogeneous response structures (e.g., categories of floor or water source should be the same or at least equivalent). Second, for the LA-MPI to be relevant to the Latin American context, the selected indicators should reflect situations of deprivation in these countries. For example, while having access to a public standpipe within 30 minutes walking distance from the dwelling is considered satisfactory by the Millennium Development Goals Indicators definitions, it certainly represents a deprived situation in the regional context.¹⁸

Third, for the LA-MPI to be validated by the previous experience in the region and the international literature (within and beyond the region) as well as to be related to regional policy goals, we need to review the literature on the specific indicators that have been utilized and the goals that have been set. Such a review is summarized in Table A.1 in the Appendix. To build the table we have used a *bottom-up* procedure. We first reviewed papers that had implemented multidimensional poverty measures, either in Latin America or elsewhere (mainly in Europe), and surveyed the particular indicators used. The work cited in those two columns of the table has been briefly explained in Sections 2 and 3 of the paper. We then evaluated whether these particular indicators were recommended by some key institutions and conventions so that they reflect theory and public consensus (criterion 3 of Alkire, 2008) as well as convenience and accuracy. For this part of the process we reviewed: the World Bank Lessons from the Living Standards Measurement Study (LSMS) (Grosh and Glewwe, 2000), which constitutes a guide for the design of multitopic surveys and offers tremendously valuable insights on which indicators work best to address the study and measurement of different dimensions of wellbeing; the indicators of the Millennium Development Goals (UN, 2003); the Declaration of the VII Andean Council of Ministers of Social Development (Consejo Andino de Ministros y Ministras de Desarrollo Social, CADS) in 2011, which contains a detailed statement of goals and targets for 2019; the Report of the Commission on the Measurement of Economic Performance and Social Progress created by the French President Sarkozy

¹⁷ In Sen's capability approach *functionings* are the actual abilities a person has to pursue the life she values and has reason to value (Sen, 1992). Indicators of functionings are, for example, actual nutritional status of each household member (and not the resource indicator of the food consumption level) and cognitive skills (and not the resource indicator of access to schooling).

¹⁸ This type of discussion actually relates to a conceptual debate on whether poverty is an absolute or a relative concept, in which we do not engage here. In this paper we take the pragmatic view that poverty has both an absolute and a relative component, the last one being determined by what is understood as customary in the societies to which the person belongs (Townsend, 1979, p. 31). Incorporating the relative component in the LA-MPI is what will differentiate it from the global MPI (Alkire and Santos, 2010).

(Sen, Stiglitz, Fitoussi, 2009); the Inter-American Development Bank Report “Disconnected” on Skills, Education and Employment in Latin America (Bassi et al., 2012); reports by CEPAL, UNESCO as well as a report by INDEC and UNICEF. Finally, we considered the dimension to which the indicator belongs and looked for conceptual support on the importance of that dimension in documents such as the Universal Declaration of Human Rights and of Child Rights, The UNEP-UNCTAD (1974) Cocoyoc Declaration on Basic Needs, the Sen, Stiglitz, Fitoussi (2009) Report, Participatory Studies on Voices of the Poor (Narayan et al., 2000a,b) as well as the Voices of the Poor study performed in Mexico (Szekely, 2003) and some of the more philosophical lists on human values and relevant dimensions of wellbeing reviewed in Alkire (2002), such as Finnis (1980), Allardt (1993) and Cummins (1996). While we have attempted to review as much as possible, surely this review is far from complete or exhaustive. We will continue enlarging the set of evidence at each of the mentioned levels.

Given this process, we have grouped the different indicators that the empirical literature has used into thirteen dimensions. Among them, we may say that the first five dimensions are ‘traditional’ in the sense that there is a substantial amount of literature, both empirical and conceptual that supports their use. These dimensions are: (1) **Basic Consumptions**, which include household per capita income as well as direct indicators of food consumption, adequate clothing, economic security and certain household durables or assets; (2) **Education**, for which a host of indicators has typically been used such as literacy, children’s school attendance, educational gap (grade-for-age), educational level of the household head or all household members and cognitive skills. In the LSMS Lessons manual it is recommended that people are tested with a few short questions to assess their cognitive skills (basic literacy and numeracy) (Grosh and Glewwe, 2000); (3) **Health**, which encompasses a broad set of indicators: self-reported health, access to health insurance, adult nutrition (measured with Body Mass Index) and (under 5) children’s nutrition (wasting, underweight or stunting), child mortality, infant immunization, access to medical attention if needed, teenage pregnancy, maternal health, presence of a serious illness and difficulty in performing daily basic activities (such as dressing, walking, bathing) autonomously; (4) **Housing Conditions and Basic Services**, which include whether the tenure is precarious, the quality of the roof, walls and floor materials, whether there is heating or not, the indicator of overcrowding, the type of sanitation and access to safe water, access to electricity, sewage and the type of cooking fuel used; finally there is (5) **Work**, where the indicators typically used have been the presence of a long-term unemployed person in the household, informally employed members and child labor, and less commonly considered, whether the person works in a risky or unsafe environment.

The other eight dimensions enjoy conceptual support but have been much less frequently used due to data constraints, thus the number of indicators found is much lower. We can consider these as less

traditional dimensions. These are: (6) **Environmental Conditions** of the household, with indicators such as home free of damp, the presence of a garden or balcony; (7) **Time Use**, with indicators that capture whether the person has some time for leisure, (8) **Social Connections and Family Support**, with indicators of whether the household celebrates special occasions or whether there are friends or family over for a meal once a month, for example; (9) **Personal Security**, with indicators that vary from the household level, such as episodes of domestic violence, to the neighborhood, such as the household being located in a dangerous area; (10) **Political Voice and Governance**, as measured by political participation or perceptions on government performance; (11) **Culture and Spirituality**; (12) **Agency and Empowerment** and (13) **Psychological Wellbeing and Life Satisfaction**.

Based on this review of the literature, which encompasses methods (2) and (3) (theory and public consensus) among those listed by Alkire (2008), we attempt a first outline of the dimensions and indicators that the LA-MPI could cover. Then, considering method (1) (data availability) we narrow it down to what would be feasible in the immediate future and make some suggestions regarding ways in which the index could be supported by public opinion. Before turning to this, in the next section we argue the methodology we think would be preferred to shape the LA-MPI.

4.2 The Measurement Methodology

There are a variety of available methodologies to measure poverty in a multidimensional way. Some authors have argued in favor of a dashboard approach (Hicks and Streeten, 1979; Ravallion, 2011), namely, a collection of unidimensional measures of deprivation for each dimension. Others have suggested using Venn Diagrams, which can be seen as graphical representations of contingency tables between binary indicators (such as being deprived and non-deprived in different dimensions) (Ferreira and Lugo, 2013). Composite indices, which combine certain indicators from a dashboard into one summary statistic, have also been used as a measurement tool, such as the Human Poverty Index (Anand and Sen, 1997). The dominance approach has also been advocated. This approach entails determining (mathematically and statistically) whether a country or region is unambiguously less deprived than another, regardless of the selection of cutoffs and measures, while also considering the joint distribution of achievements (Duclos, Sahn and Younger, 2006). There is also a host of possible statistical tools to implement, such as principal components analysis (e.g., Filmer and Pritchett, 2001 index). Fuzzy sets have been another proposed alternative (Cerioli and Zani, 1990; Cheli and Lemmi, 1995; Chiappero-Martinetti, 1994, 1996, 2000). Such sets are attractive because they allow a ‘degree’ of membership to the set of the poor rather than dichotomizing the population into poor and non-poor. Finally, there are the axiomatic measures, which have extended the framework developed for the unidimensional analysis; these include indices proposed by Chakravarty, Mukherjee and Renade (1998), Tsui (2002), Bourguignon

and Chakravarty (2003), Chakravarty and Silber (2008), Bossert, Chakravarty and D'Ambrosio (2009), and Alkire and Foster (2007, 2011).

Each of the above methods has its advantages and disadvantages and it falls beyond the scope of this paper to detail them all. Here we present the main arguments for advocating one particular method, the AF methodology, and, within it, one particular measure, M_0 .

Let us first briefly introduce the M_0 measure in a non-technical way. Constructing the M_0 measure entails the following steps (Alkire and Santos, 2013, p. 8):

1. Defining the set of *indicators* which will be considered in the multidimensional measure. Data for all indicators needs to be available for the same person or household.
2. Setting the *deprivation cutoffs* for each indicator, namely the level of achievement (normatively) considered sufficient in order to be non-deprived in each indicator.
3. Applying the cutoffs to ascertain whether each person is *deprived* or not in each indicator.
4. Selecting the relative weights or value that each indicator has, such that these sum to one.
5. Determining the *poverty cutoff*, namely, the proportion of weighted deprivations a person needs to experience in order to be considered multidimensionally poor.
6. Creating the weighted proportion of deprivations for each person, which can be called his/her *deprivation score*, and identifying him/her as multidimensionally poor or not according to the selected poverty cutoff.
7. Computing the proportion of people who have been identified as multidimensionally poor in the population. This is the *headcount ratio* of multidimensional poverty H , also called the **incidence** of multidimensional poverty.
8. Computing the average share of weighted indicators in which poor people are deprived. This entails adding up the deprivation scores of the poor and dividing it by the total number of poor people. This is the **intensity** of multidimensional poverty, A .
9. Computing the M_0 measure as the product of the two previous partial indices: $M_0 = H \times A$. Alternatively, M_0 can be obtained as the sum of the weighted deprivations that the poor (and *only* the poor) experience, divided by the total population.

The AF methodology, and specifically the M_0 measure, is particularly convenient for a number of reasons. In the first place, the AF measures (as well as of any of the axiomatic measures) offer a summary statistic, something usually required by policy makers and the general public to assess the

overall trend of poverty. This is an advantage over the dashboard, Venn diagrams and the stochastic dominance approaches. Moreover, by condensing the information into one number, weights and trade-offs are assumed and made explicit, as well as hierarchies amongst the indicators used. This is a valuable characteristic as it promotes debate on priorities. Second, as opposed to composite indices and dashboard approaches, the AF measures address the joint distribution of achievements, that is, whether people experience *simultaneous* deprivations or not, allowing a focus on the jointly deprived. Third, the AF measures (as well as of any of the axiomatic measures) satisfy the two basic steps of poverty measurement stated by Sen (1976): identifying the poor and aggregating their poverty values into one number. Many of the other methods, such as the dashboard and stochastic dominance, remain silent on who are the poor and how many poor people there are (Alkire, Foster and Santos, 2011). A fourth advantage of the AF measures (as well as of any axiomatic measure) is that they do not rely on a particular dataset as some statistical techniques do; thus they are replicable (and therefore comparable) over time and across regions. Fifth, while fuzzy sets measures are attractive, they are less transparent, understandable and communicable to the general public; they rely on a specific membership function, which may not be accurate for ordinal data. Sixth, the advantage of the M_0 measure over other axiomatic measures is that it is robust to changes in the scale of ordinal variables and it is decomposable both by population sub-group as well as by indicator (post-identification). These last two properties are particularly relevant for policy issues. Thus, while summarizing a complex phenomenon into one number, it can be unfolded into an array of intuitive and consistent sub-indices which include poverty incidence and intensity, indicators' censored headcount ratios, percent contributions by indicators, and comparisons across population subgroups.¹⁹ Seventh, M_0 is sensitive to the breadth or intensity of poverty, such that if someone who is poor becomes deprived in an additional indicator, the poverty measure will reflect this impoverishment. Last, but not least, M_0 has an intuitive interpretation: it reflects the proportion of weighted deprivations that the poor experience out of all the total potential deprivations that society could experience.

Using the M_0 measure for the LA-MPI contributes to the three last requirements of the desiderata stated at the beginning of the section which demands the measure to be replicable, easily understandable and methodologically robust.

¹⁹ For further explanation on the different sub-indices associated with the M_0 measure, see Alkire and Santos (2011).

4.3 Drafting an MPI for Latin America: Dimensions and Indicators

Table 2 presents a first draft of the dimensions and indicators that could be included in the LA-MPI. The proposal draws from the review of the literature condensed in Table A.1. Note that there is one column that states the desirable indicator and another column that states whether this is possible, i.e., whether there is data available to construct that indicator in the household surveys of the different countries in the region. Another column states whether, in case it is not feasible to use the desirable indicator, there is a second best indicator. To complete these two columns, we have considered the regular household surveys implemented in the region by the official institutes of statistics and census. These are either the LSMS type of surveys or employment surveys.²⁰ We are considering these surveys because they collect information on monetary poverty, a dimension revealed as important in the international literature as well as in participatory studies among the poor in Latin America (Szekely, 2003). Yet, as we shall see, favoring these datasets produces a tension with the health dimension, as they have very limited data on health.

In the first place, it must be clarified that the unit to identify the poor would be the household. While using the individual might have its advantages, this is really not possible with the current data, but more importantly, there are conceptual and practical advantages for using the household. In the first place, using the household as the unit of identification allows for interaction, smoothing and mutual sharing within the household, and can create policy efficiencies (Alkire and Santos, 2013). In fact, poverty reduction programs are targeted to households. Moreover Mercosur declarations define households as the unit of intervention for public policy (Mercosur, 2007).

We propose the measure cover the five traditional dimensions that have emerged from the literature review of empirical and conceptual studies, namely: basic consumptions, education, health, housing and basic services and work. For the moment we leave aside the non-traditional dimensions, not because we think they are not relevant but because of a criterion of *parsimony* and *priority*. In terms of parsimony, measures with a reduced number of dimensions are easier to understand and communicate than measures that intend to comprehend all. In terms of priority, the traditional dimensions seem to coincide with core aspects of wellbeing in such a way that failure to meet them threatens livelihoods and quite basic capabilities. These two principles contribute to the requirement of being ‘easily understandable’ in the desiderata stated at the beginning of the section.

²⁰ There is a homogenized database of these surveys produced by CEDLAS and World Bank (SEDLAC dataset, CEDLAS, 2009).

The suggested indicators for the **basic consumption dimension** are as follows. We suggest using consumption expenditure, as this is recognized to be a better indicator of living standard than income. However, household surveys in LA collect information on income; thus this is the second best indicator. As mentioned in Section 2, evidence from Europe indicates that income does not correlate as highly as expected with material deprivation. In European surveys, it is common to include direct indicators of food security, such as the frequency of meals a day, hot meals a day and consumption of meat, fish and vegetables. In fact, the FAO has developed guidelines for the measurement of dietary diversity both at the individual and household level (FAO, 2011). Incorporating these types of questions into household surveys in Latin America would therefore contribute significantly to a better assessment of food security, arguably a core dimension in poverty measurement. However, it must be acknowledged that while it has been found that dietary diversity indicators are strong predictors of anthropometric outcomes, the relationship varies across countries and contexts and it is not possible to make inferences about specific micronutrients adequacies (Headey and Hecker, 2013; Haen, Klasen, Qaim, 2011). Thus, anthropometric and possibly micronutrients indicators (discussed below) should also be collected to complement food security indicators. Each measure is interconnected but has different aspects.

Another relevant aspect of basic consumptions relates to economic security (typically collected in European surveys) and the consumption of durable goods, as they facilitate a number of basic daily activities and standard of living; these have been classified into four groups but the list may be enlarged.

All the indicators in the basic consumption dimension refer to issues supported by the Basic Needs Approach, Human Rights and participatory studies among the poor (both worldwide and in Mexico). However, unfortunately most of the mentioned variables are not currently collected in household surveys in Latin America, except for some questions on durables (typically the telephone). Thus, with the current data, we would need to rely on the per capita (or equivalized) household income and possibly complement that with an indicator on the ownership of a reduced set of household durables.

The indicators proposed for the **education dimension** are children's school attendance, children's educational gap, educational level of adult members and cognitive skills. Each of these indicators captures a different aspect. Access is important (what Sen calls *opportunity freedom*), widely used empirically and supported by international institutions. Yet this indicator needs to be complemented by information on the quality of education. An imperfect indicator that has been used is educational gap, that is, whether the child is attending a lower grade than the one he/she should be attending.²¹ Among the adult members of the household, educational attainment is another relevant indicator, both because of its

²¹ The indicator is imperfect because, among other reasons, the rules for passing grades vary across and within countries.

intrinsic and instrumental value (earnings capacity and positive spillovers to other household members). These three variables are available in current datasets in LA. However, cognitive skills are not. This would be a really key indicator to include, as it is a measure of educational quality and the effectiveness of the educational system. Simple tests can be administered in household surveys to measure the cognitive functioning of adults and the cognitive development of children. (Glewwe, 2000). Such tests can also inform the health dimension.

The **health dimension** is the dimension where the gap between the desirable and the feasible is biggest. Based on the reviewed conceptual and empirical literature, we would like to consider access to health insurance, nutritional indicators (anthropometrics), child mortality, infant immunization and difficulty in performing basic activities of daily life.

Having some sort of insurance or health benefit is the very minimum one needs to consider if intending to incorporate health. This is the only health variable that is widely available across the living standard surveys in LA countries. Gertler, Rose and Glewwe (2000) recommend collecting data regarding the specific benefit structure of the insurance, as there is great variation across and within countries in terms of what it is actually covered. Thus, it would be important to refine the questions currently used in these lines.²²

The following health indicators are not available in LSMS or employment surveys in the region, yet there are good reasons for including them as part of a poverty measure. Expanding the surveys on the health dimension would be of great importance.

Anthropometric indicators of nutritional status are key in poverty assessments. They reveal a serious threat to livelihood and they can also uncover patterns of intra-household allocation of goods (see for example, Sahn and Younger, 2009). For children under five years of age, low height-for-age – the stunting indicator – is a measure of long-term malnutrition; it is more difficult to reverse than low weight-for-age (underweight) and low weight-for-height (wasting) (WHO, 1986). There is evidence that the stunting indicator captures higher levels of malnutrition than the official MDG indicator (low weight-for-age), in particular in Latin America (Lutter, Chaparro and Muñoz, 2011).²³ It must be acknowledged, however, that anthropometric measures do not reveal many aspects of micronutrients status (such as levels of vitamin A or iron in the blood). Yet there are some inexpensive and convenient

²² Clearly, for a person with a very high income, health insurance may not be needed. Thus, it may be required to carefully elaborate the conditions in this indicator to be considered deprived, perhaps combining it with some income condition.

²³ Arm circumference for weight is a much less commonly collected nutritional indicator in under-five years old children, which is equivalent to weight-for-height (WHO, 1986).

methods to collect information on micronutrients, such as a blood sample taken by means of a single pinprick (Alderman, 2000).²⁴ Nutritional status of adults is commonly assessed using the Body Mass Index (BMI), as it is highly correlated with many health-related indicators, including mortality risk (Alderman, 2000). Note that both low and high BMI values are associated with health risks. The nutritional status of older children and adolescents (children 5–19 years old) can be measured with height-for-age or BMI-for-age.²⁵

Child mortality is still an issue in the region. Although Latin America has experienced significant progress in terms of reducing the child mortality rate (from 52 per 1000 children born alive in 1990 to 23 in 2009), it is still behind the MDG target of reducing it by two thirds. The region is also far from mortality rates of developed countries (7 per 1000 in 2009). Moreover, there are wide inequalities within the region in terms of mortality rates of urban *vs.* rural areas, of income richest *vs.* income poorest households, and of more educated *vs.* less educated mothers (UN, 2011). Thus, it would be relevant to include this dimension in an LA-MPI.

The importance of child immunization is widely recognized, especially since 1974 when the WHO established the Expanded Programme on Immunization to ensure that all children had access to routinely recommended vaccines. The importance of immunization has been recently reinforced with the launch in 2010 of the Decade of Vaccines (WHO, 2013). Incorporating an indicator of child immunization in an LA-MPI would create additional incentives for countries to advance in extending vaccination coverage.

In terms of health status of adults, questions related to the ability to perform activities of daily living have been tested and validated.²⁶ These (now fairly standard) questions seem to work better than self-reported measures of health because they are well defined and do not require respondents to provide general opinions about their own health (Gertler, Rose and Glewwe, 2000). Ideally, this indicator could be complemented with some indicator on mental health.

Indicators of teenage pregnancy and maternal health are not proposed to be considered because their incidence would be quite low in the household surveys data, and thus it is best to consider them separately from the overall measure. At this point it is worth noting that several LA countries have

²⁴ Alternatively, Alderman (2000) indicates that it is possible to make some inferences on nutrient intake by collecting food recall data. Yet, this will be far less accurate, as it is subject to significant measurement error (Ahmed, Brzozowski and Crossley, 2006).

²⁵ The development of growth reference curves conducted by WHO for this age range is relatively new (de Onis et al., 2007). This is a life period of rapid growth and sexual maturation during which the rates of height and weight are not constant. Each of the two indicators measures different aspects of malnutrition and the selection of one of them should be based on further empirical evidence.

²⁶ These questions were initially developed to test disability among the elderly.

Demographic and Health Survey (DHS) data, an internationally homogeneous survey that collects detailed information on nutrition, mortality and immunization. However, DHS do not collect consumption or income information. Thus, we face a tension between the dimensions to privilege (health *vs.* monetary) and the data sources to use (DHS *vs.* LSMS/employment surveys). It would be ideal if there were an advance in the region in collecting a core set of (cross-country comparable) indicators in the *same* survey.

In the **housing dimension** we suggest including seven indicators: secure tenure (either by ownership of the house or formal renting); satisfactory quality of the roof, walls and floor materials; an indicator of overcrowding; type of sanitation (possibly combined with sewage); water source; access to electricity and type of cooking fuel. In terms of the electricity indicator, it would be ideal to include not just access but also the quality of the service, considering whether there are frequent power cuts. All these indicators have wide support in the literature. While most of these indicators are available (except for quality of the electricity service), some homogenizing work will be required across the surveys.

Table 2: **Proposed Dimensions and Indicators for the LA-MPI**

Dimension	Desirable Indicator	Possible Indicator	Second best indicator
Basic Consumption	Consumption Expenditure	□□ × □□□ □□	□ Income
	Food Security (meals a day/ one hot meal a day/ consumption of meat, fish, vegetables, questions on dietary variety)	× □□	-
	Economic Security (not in arrears, savings capacity)	× □□	-
	Assets/Durables: Communications: TV, radio, Internet, computer		
	Transportation: bike, motorbike, car Related to Food Security: refrigerator, stove Comfort: washing machine, microwave, heating/cooling	× □	Only telephone
Education	Children's School Attendance	✓	
	Children's Educational Gap	✓	
	Educational Level of Adult Members (completion of secondary school)	✓	
	Cognitive Skills	× □	-
Health	Health Insurance	✓	
	Nutrition (BMI for adults and stunting for children)	× □	-
	Child Mortality	× □	-

Housing & Basic Services	Infant Immunization	✗□	-
	Difficulty in performing basic activities of daily living autonomously	✗□	-
	Irregular Tenure	✓	
	Roof, walls and floor materials or “dwelling of inconvenient type”.	✓	
	Overcrowding	✓	
	Sanitation	✓	
	Drinking Water	✓	
	Electricity (with quality of the service)	✓ (not-quality)	
	Cooking fuel	✓	
	Long-term unemployment	✓	
Work	Precarious work: Informal work (no labor benefits), unsafe working environment, below-minimum wage work, overwork.	✓ (not-safety)	
	Child labor	✓	

Finally, for the **work dimension** we propose to use some of the most used indicators of long-term unemployment, informal employment (defined by lack of labor benefits) and child labor. We also propose to enlarge the informal employment indicator with some other indicators of precarious work that relate to an unsafe working environment (Lugo, 2007) and possibly with an indicator of below-minimum wage employment. Additionally, it would be interesting to explore the possibility of including, either within this indicator or in a separate one, a measure of over-work, as this may capture aspects of intra-household gender inequality. The importance of the time use dimension, especially in the Latin American context, has been argued by Boltvinik (1992) as well as by other authors elsewhere (see for example, Burchardt, 2008).

Some clarifications are required. First, this is merely a first outline of the dimensions and indicators to consider, not a definite one. Empirical exploratory work will follow this proposal in order to assess more accurately the relevance and the associations between the proposed indicators.²⁷ Second, we have left undefined on purpose the particular specification of the indicators in terms of the deprivation cutoffs to be used. A further review of the literature is underway to set such cutoffs at relevant values for the LA context, which will be complemented by an empirical exploration of alternative cutoffs. Third, we have also left undefined the weighting structure and poverty cutoff (the minimum number or proportion of

²⁷ The issue of association among indicators is a complex one. Although higher correlation between indicators is often criticized as redundancy, Foster, McGillivray and Seth (2012) show that the more correlated the component indicators of a composite index are, the more robust the weighting is, something usually desired for a composite index. This also applies to multidimensional measures. They suggest that the trade-off between redundancy and robustness needs further research (pp. 51–52).

weighted deprivations that will be required in order to identify the household as poor). This will be the subject of various robustness tests once the selection of dimensions and indicators is definite.

5. Concluding Remarks and Next Research Questions

This paper aims at fostering the debate about and the design of a multidimensional poverty index for Latin America (LA-MPI) that will be internationally comparable in the region yet relevant to the Latin American context. In this way, the LA-MPI will depart from the global MPI, which, because it measures acute poverty, produces quite low poverty estimates in these countries.

In order to accomplish this goal, we have reviewed experiences with multidimensional poverty measurement in the Latin American context, covering the measures of unsatisfied basic needs, the integrated method to measure poverty, recent national multidimensional measures and academic studies. We also reviewed similar experiences in Europe. We proposed a number of desirable features for the LA-IPM to have, namely being (1) internationally comparable across Latin American countries, (2) relevant to the Latin American context, (3) validated by the previous experience in the region and the international literature (within and beyond the region) as well as, ideally, public opinion, (4) related to regional policy goals, (5) replicable, (6) easily understandable, and (7) methodologically robust. To achieve these desiderata we drew from the available experience, as reviewed in the first part of the paper, for the selection of dimensions and indicators. Second, we suggest using the M0 measure of the Alkire and Foster methodology as the structure for the LA-MPI and justify this selection via a number of reasons.

There is one particular recommendation that emerges from the paper: to advocate for the collection of better data in three very specific ways. First, it is essential to enlarge the collection of data on health indicators. Anthropometric indicators are especially recommended in the literature, and it would be worth it for countries to invest in this, as they could significantly improve their policy design. Second, it is important to work toward higher homogenization across household surveys in the region, for all variables. Third, it would be highly significant if household surveys in the region could learn from European surveys about collecting data on socially perceived necessities as well as on enforced lack vs. choice. Such information is likely to prove valuable for the design of national measures and policies, and, clearly, it would give a better basis for the design of a LA-MPI.

The next research questions relate to specifying further the LA-MPI in terms of deprivation cutoffs, weights and poverty cutoffs. Such selections will result from an iterative process between empirical work and further conceptual review.

Appendix

Table A.1: Review of the literature on dimensions and indicators for a multidimensional poverty measure

Dimension	Frequently used Indicators	References of the dimension conceptual importance	References of the indicator conceptual importance	References of the indicator being used in empirical multidimensional poverty measures in LAC	References of the indicator being used in empirical multidimensional poverty measures outside LAC
Basic Consumptions	Income (National Food Poverty Line, National Total Poverty Line, Relative Poverty Line)	Cocoyoc Declaration (1974), Sen, Stiglitz, Fitoussi (2009), Narayan et al (2000), Universal Human Rights, Allardt (1993), Cummins (1996). Lo que dicen los pobres (Szekely, 2003) (Mexico)	CADS (2011), CEPAL (2005, 2008, 2013), Grosh and Glewwe (2000), MDGS (UN, 2003).	Official Multidimensional Poverty Measure of Mexico (CONEVAL, 2009). Integrated Method to measure poverty (Beccaria and Minujin, 1988; Katzman, 1989), Arim and Vigortio (2007) (Uruguay), Amarante et al. (2008) (Uruguay), Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil)	Bhutan's GNHS (2012) Measures of 'consistent poverty' Townsend (1979), Mack and Lansley (1980), Callan, Nolan, Whelan (1993) (using relative poverty line approach), European Commission EU-2020
	Food Security (meals a day/ one hot meal a day/consumption of meat, fish, vegetables)		World Bank-LSMS: Grosh & Glewwe (2000) (indirect, via consumption expenditure), Sphere Project	MPI-Children Colombia (Garcia et al, 2013)	Townsend (1979), Mack and Lansley (1980), Callan, Nolan, Whelan (1993), Layte et al (2001), Muffels et al (1992), Gordon et al (2000), Halleröd (1995), Mayer and Jencks (1989), Gordon et al (2003)
	Clothing		World Bank-LSMS: Grosh & Glewwe (2000) (indirect, via consumption expenditure).		Townsend (1979), Mack and Lansley (1980), Callan, Nolan, Whelan (1993), Layte et al (2001), Muffels et al (1992), Gordon et al (2000), Halleröd (1995), Eurostat (2002)
	Economic Security (not in arrears, savings capacity)			MPI-Children Colombia (Garcia et al, 2013)	Nolan, Whelan (1993), Layte et al (2001), Muffels et al (1992), Halleröd (1995)
	Assets/Durables: Communications: TV, radio, Internet, computer Transportation: bike, motorbike, car Food Security: Refrigerator, stove Comfort: washing machine, microwave	Narayan et al (2000),	MDGS (UN, 2003) (telephone & internet), World Bank-LSMS: Grosh & Glewwe (2000)	Boltvinik (1992, 2012, telephone) Arim and Vigorito (2007) (Uruguay) MPI-Children Colombia (Garcia et al, 2013) (information), Paes de Barros (2006) (Brazil) Lopez-Calva and Rodriguez Chamussy (2005) (Mexico)	Townsend (1979), Mack and Lansley (1980), Callan, Nolan, Whelan (1993), UNDP (2010)-Alkire & Santos (2010), Callan <i>et al.</i> (1999), Whelan <i>et al.</i> (2001), Layte <i>et al.</i> (2000), Whelan <i>et al.</i> (2001), Whelan, Nolan, Maitre (2006), Eurostat (2002), Muffels et al (1992), Bhutan's GNHS (2012), Gordon et al (2000), Halleröd (1995), Eurostat (2002), Gordon et al (2003) (information)

Dimension	Frequently used Indicators	References of the dimension conceptual importance	References of the indicator conceptual importance	References of the indicator being used in empirical multidimensional poverty measures in LAC	References of the indicator being used in empirical multidimensional poverty measures outside LAC
Education	Literacy		World Bank-LSMS: Grosh & Glewwe (2000), MDGSs (UN, 2001), CEPAL (2008), CADS (2011), Sen, Stiglitz, Fitoussi (2009)	NBI Bolivia, Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil), Lopez-Calva and Ortiz Juarez (2009) (Mexico)	Bhutan's GNHS (2012)
	Attendance to school		World Bank-LSMS: Grosh & Glewwe (2000), MDGSs (UN, 2001), CEPAL (2008), UNESCO (2012), BID (2012), CADS (2011).	Método NBI (en medidas oficiales de: Argentina, Bolivia, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Perú, Uruguay y Venezuela). Boltvinik (1993, 2012) Medida Oficial de Pobreza Multidimensional de Colombia (Angulo Salazar et al, 2011) y de México (CONEVAL, 2009), MPI-Children Colombia (Garcia et al, 2013), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) (Mexico)	UNDP (2010)-Alkire y Santos (2010), Gordon et al (2003)
	Educational Gap	Cocoyoc Declaration (1974), Sen, Stiglitz, Fitoussi (2009), Narayan et al (2000), Finnis (1980), Universal Human Rights, Allardt (1993), Cummins (1996), UN Convention on the Rights of the Child	UNESCO (2010), CEPAL/OEI (2009), BID (2012), INDEC-UNICEF (2003).	Medida Oficial de Pobreza Multidimensional de Colombia (2011), UCA (2012), NBI Bolivia, MPI-Children Colombia (Garcia et al, 2013), Paes de Barros (2006) (Brazil)	
	Educational level of household head or other adult members	Sen, Stiglitz, Fitoussi (2009)	World Bank-LSMS: Grosh & Glewwe (2000), CEPAL/OEI (2009), Sen, Stiglitz, Fitoussi (2009)	UCA (2012), Boltvinik (1993, 2012) Método NBI, primaria parcial o completa, integrado en el indicador de 'capacidad económica' (en medidas oficiales de: Argentina, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Perú, Uruguay y Venezuela), Arim and Vigorito (2007) (Uruguay), Amarante et al. (2008) (Uruguay), Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) (Mexico)	Townsend (1979), Muffels et al (1992), UNDP (2010)-Alkire y Santos (2010),
	Cognitive skills		Grosh & Glewwe (2000), CADS (2011), BID (2012), Sen, Stiglitz, Fitoussi (2009), UNESCO (2012)		

Dimension	Frequently used Indicators	References of the dimension conceptual importance	References of the indicator conceptual importance	References of the indicator being used in empirical multidimensional poverty measures in LAC	References of the indicator being used in empirical multidimensional poverty measures outside LAC
Health	Self-reported health	Cocoyoc Declaration (1974), Sen, Stiglitz, Fitoussi (2009), Narayan et al (2000), Finnis (1980), Universal Human Rights, Sphere Project, Allardt (1993), UN Convention on the Rights of the Child			Muffels et al (1992), Bhutan's GNHS (2012)
	Acces to health insurance (coverage)		World Bank-LSMS: Grosh & Glewwe (2000), CADS (2011), CEPAL (2008), Sen, Stiglitz, Fitoussi (2009)	Medida Oficial de Pobreza Multidimensional de Colombia (Angulo Salazar et al, 2011) y de México (CONEVAL, 2009), UCA (2012), Botvinik (1992, 2012), NBI Bolivia, MPI-Children Colombia (Garcia et al, 2013), Lopez-Calva and Ortiz Juarez (2009) (Mexico)	Mayer and Jencks (1989)
	Adult nutrition (BMI)		MDGS (UN, 2003), World Bank-LSMS: Grosh & Glewwe (2000), Sen, Stiglitz, Fitoussi (2009) Sphere Project		
	Infants' nutrition (under 5 years of age)		MDGS (UN, 2003), World Bank-LSMS: Grosh & Glewwe (2000), CADS (2011), Sen, Stiglitz, Fitoussi (2009), Sphere Project	MPI-Children Colombia (Garcia et al, 2013), Amarante et al. (2008) (Uruguay)	PNUD (2010), Alkire y Santos (2010). Gordon et al (2003), Bhutan's GNHS (2012), Gordon et al (2003)
	Child Mortality		World Bank-LSMS: Grosh & Glewwe (2000), INDEC y UNICEF (2003), CADS (2011), Sen, Stiglitz, Fitoussi (2009), MDGS (UN, 2003)	UCA (2012), Paes de Barros (2006) (Brazil)	
	Infant Immunization		World Bank-LSMS: Grosh & Glewwe (2000)	Medida Oficial de Pobreza Multidimensional de Colombia (Angulo Salazar et al, 2011), MPI-Children Colombia (Garcia et al, 2013)	MDGS (UN, 2003), Gordon et al (2003)
	Medical attention in case needed		World Bank-LSMS: Grosh & Glewwe (2000), CADS (2011)		Halleröd (1995), Mayer and Jencks (1989), Gordon et al (2003)
	Teenage pregnancy		CADS (2011)		
	Maternal health		CADS (2011)		MDGS (UN, 2003),
	Serious illness		MDGS (UN, 2003) (malaria, tuberculosis, HIV)	Lopez-Calva and Ortiz Juarez (2009) (Mexico)	Townsend (1979), Bhutan's GNHS (2012),
	Difficulty to perform daily basic activities (feeding, dressing) autonomously				Townsend (1979)

Dimension	Frequently used Indicators	References of the dimension conceptual importance	References of the indicator conceptual importance	References of the indicator being used in empirical multidimensional poverty measures in LAC	References of the indicator being used in empirical multidimensional poverty measures outside LAC
Housing & Basic Services	Tenure	Cocoyoc Declaration (1974), Sphere Project, Allardt (1993), Cummins (1996), Lo que dicen los pobres (Szekely, 2003) (Mexico)	World Bank-LSMS: Grosh & Glewwe (2000), MDGS (UN, 2003),	UCA (2012), Paes de Barros (2006) (Brazil)	
	Roof, walls and floor materials or 'dwelling of inconvenient type'.		World Bank-LSMS: Grosh & Glewwe (2000)	UBN Official Measures of Argentina, Bolivia, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Peru and Uruguay and Venezuela. Boltvinik (1992, 2012), Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) (Mexico), Lopez-Calva and Ortiz Juarez (2009) (Mexico)	Muffels et al (1992), Bhutan's GNHS (2012), Mayer and Jencks (1989), Gordon et al (2003)
	Heating		World Bank-LSMS: Grosh & Glewwe (2000)		Townsend (1979), Mack and Lansley (1980), Callan, Nolan, Whelan (1993), Layte et al (2001), Muffels et al (1992), Gordon et al (2000), Mayer and Jencks (1989), Gordon et al (2003)
	Overcrowding			UBN Official Measures of Argentina, Bolivia, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Peru and Uruguay and Venezuela. Arim and Vigorito (2007) (Uruguay), Amarante et al. (2008) (Uruguay), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) (Mexico), Lopez-Calva and Ortiz Juarez (2009) (Mexico)	Muffels et al (1992), Bhutan's GNHS (2012), Halleröd (1995), Mayer and Jencks (1989), Gordon et al (2003)
	Sanitation		World Bank-LSMS: Grosh & Glewwe (2000), CADS (2011), MDGS (UN, 2003), Sphere Project	UBN Official Measures of Argentina, Bolivia, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Peru and Uruguay and Venezuela. Boltvinik (1992, 2012), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) and Lopez-Calva and Ortiz Juarez (2009) (Mexico)	Gordon et al (2003) Muffels et al (1992), Bhutan's GNHS (2012), Halleröd (1995), Eurostat (2002), Mayer and Jencks (1989), Gordon et al (2003), Gordon et al (2003)

Dimension	Frequently used Indicators	References of the dimension conceptual importance	References of the indicator conceptual importance	References of the indicator being used in empirical multidimensional poverty measures in LAC	References of the indicator being used in empirical multidimensional poverty measures outside LAC
Housing & Basic Services (cntd)	Drinking Water		World Bank-LSMS: Grosh & Glewwe (2000), MDGS (UN, 2003), CADS (2011), Sphere Project	UBN Official Measures of Bolivia, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Peru and Uruguay and Venezuela. Boltvinik (1992, 2012), Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) (Mexico)	Gordon et al (2003), Halleröd (1995), Eurostat (2002), Mayer and Jencks (1989), Gordon et al (2003)
	Electricity	Cocoyoc Declaration (1974), Sphere Project, Allardt (1993), Cummins (1996), Lo que dicen los pobres (Szekely, 2003) (Mexico)	World Bank-LSMS: Grosh & Glewwe (2000), CADS (2011)	UBN Bolivia Boltvinik (1992, 2012), Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil)	Mayer and Jencks (1989)
	Sewage		World Bank-LSMS: Grosh & Glewwe (2000)	UBN Bolivia, Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil), Lopez-Calva and Ortiz Juarez (2009) (Mexico)	
	Cooking fuel		World Bank-LSMS: Grosh & Glewwe (2000), MDGS (UN, 2003)	UBN Bolivia	
Work	Unemployment (long term)		CADS (2011), MDGS (UN, 2003), World Bank-LSMS: Grosh & Glewwe (2000)	Official Multidimensional Poverty Measure of Colombia (Angulo Salazar et al, 2011), Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil)	European Commission EU-2020
	Employment without social security, informal work	Cocoyoc Declaration (1974), Sen, Stiglitz, Fitoussi (2009), Finnis (1980), Narayan et al (2000), Universal Human Rights, Allardt (1993), Lo que dicen los pobres (Szekely, 2003) (Mexico)	CEPAL (2008, 2011), CADS (2011), World Bank-LSMS: Grosh & Glewwe (2000)	Official Multidimensional Poverty Measure of Colombia (Angulo Salazar et al, 2011) and Mexico (CONEVAL, 2009). UBN Bolivia (social security), Conconi and Ham (2007) (Argentina), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) (Mexico) (social security)	Townsend (1979)
	Risky work environment				Townsend (1979), Muffels et al (1992)
	Child labor		UN Convention on the Rights of the Child	Official MD Poverty Measure of Colombia (Angulo Salazar et al, 2011), Paes de Barros (2006) (Brazil), Lopez-Calva and Rodriguez Chamussy (2005) (Mexico)	

Dimension	Frequently used Indicators	References of the dimension conceptual importance	References of the indicator conceptual importance	References of the indicator being used in empirical multidimensional poverty measures in LAC	References of the indicator being used in empirical multidimensional poverty measures outside LAC
Environmental Conditions	Home free of damp, garden or balcony. Free from bad smell	Sen, Stiglitz, Fitoussi (2009), Narayan et al (2000), MDGS (UN, 2003)	World Bank-LSMS: Grosh & Glewwe (2000)		Muffels et al (1992), Bhutan's GNHS (2012), Gordon et al (2000), Halleröd (1995), Eurostat (2002)
Time Use	Time for leisure activities	Sen, Stiglitz, Fitoussi (2009), Finnis (1980), Allardt (1993), Cummins (1996), UN Convention on the Rights of the Child	World Bank-LSMS: Grosh & Glewwe (2000)	MPI-Children Colombia (Garcia et al, 2013)	Bhutan's GNHS (2012) Gordon et al (2000), Halleröd (1995)
Social Connections & Family Support	Having celebrations on special occasions Friends/family for a meal once a month	Sen, Stiglitz, Fitoussi (2009), Narayan et al (2000), Finnis (1980), Allardt (1993), UN Convention on the Rights of the Child			Bhutan's GNHS (2012), Gordon et al (2000), Halleröd (1995), Townsend (1979)
Personal Security (free from Violence)	Family violence/ Children spending most of the day alone with no adult supervision Households that have experienced burglaries	Sen, Stiglitz, Fitoussi (2009), Narayan et al (2000), Universal Human Rights, Cummins (1996)		MPI-Children Colombia (Garcia et al, 2013), Lopez-Calva and Ortiz Juarez (2009) (Mexico)	
Political Voice and Governance	Political participation, perceptions on government performance	Sen, Stiglitz, Fitoussi (2009), Universal Human Rights, Allardt (1993)			Bhutan's GNHS (2012)
Culture and Spirituality	Cultural participation, speak native language	Finnis (1980), Cummins (1996), Universal Human Rights,			Bhutan's GNHS (2012)
Agency and Empowerment	Index of social participation	Finnis (1980), Allardt (1993), Universal Human Rights, UN Convention on the Rights of the Child		Amarante et al. (2008) (Uruguay)	
Life satisfaction/ Psychological Wellbeing	Indicator of Life satisfaction	Sen, Stiglitz, Fitoussi (2009), Narayan et al (2000)			Muffels et al (1992), Bhutan's GNHS (2012)

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